REMARKS

Claims 1-6 were previously canceled. Claims 7, 8, 11-13 have been amended. Claims 14-21 have been indicated as allowable. It should be appreciated that the amendments are fully supported in the specification and do not add new matter. Claims 7-21 remain in the application.

Claim 13 was objected to because of an informality, and has been corrected.

Claims 7-13 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement that the subject matter reasonably conveys to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. In particular, the Examiner pointed to the scope and meaning of "a solid ring of hot melt adhesive insertable into the annular gap and positioned against said connecting wall". The Applicant has amended claim 7 to further clarify the terms "insertable" and "positioned". Claim 11 has been amended to further clarify the length description of the inner tube.

The claims have been amended accordingly to correct these informalities. The Applicant respectfully submits that the claims are in a condition for allowance, which allowance is respectfully solicited.

Claims 7-8 were rejected under 35 U.S.C. §102(b) as being anticipated by Nakashiba et al. (US 5,150,922). The Applicant respectfully traverses this rejection.

U.S. Patent Number 5,150,922 to Nakashiba et al. discloses an electrofusion joint and heater for supplying hot water that performs well at elevated temperatures. Nakashiba discloses an electrofusion joint 20 mounted in the mating portion 17 of members 15, 16. As shown in FIG. 4, and described at column 8, lines 51-66, each side of the joint includes a joining portion. Each joining portion includes a support 23 defining a groove 22 for receiving the end of the member 15 or 16, to be joined. The support is integrally formed by a crosslinked thermoplastic

resin layer 12 which forms the main outer body of the joint. The supports 23 are made of a crosslinked polyolefin and extend from the center of the crosslinked polyolefin layer 12 to form a groove 22 between the support 23 and the non-crosslinked polyolefin layers 13. The joint also includes a non-crosslinked polyolefin layer 13 that is positioned on an inner surface of the crosslinked polyolefin layer 12 adjacent the groove. Each joint also includes an integral heating element or electrical wire provided either within or on an outer or inner surface of the non-crosslinked polyolefin layer 13. The members 15, 16 are inserted into the grooves 22 on an opposite side of the joint 20 and are mounted to contact the non-crosslinked polyolefin layers 13, and are supported by the supports. Upon the external application of the electric current to the electric wires 14, the non-crosslinked layers 13 are melted and fuse to form the joint. The members 15 and 16 are pipes having a layer of a thermoplastic resin. Nakashiba et al. '922 does not disclose a linear connecting wall secured to the rear *end* of an inner tube and a rear end of the concentric outer tube that defines one cylindrically shaped annular gap, and a compact ring of hot melt adhesive disposed in the annular gap adjacent the connecting wall and occupying less than the entire volume of the annular gap, as disclosed by the Applicant.

In contradistinction, claim 7 discloses a tubular coupling element for a glued joint with a fluid line. The tubular element includes an inner tube having a front end and a rear end, and the front end is insertable into a fluid line. The tubular coupling element further includes an outer tube having a front end and a rear end, that is concentric to the inner tube. The length of the front end of the inner tube is longer than the length of the front end of the outer tube. The tubular element also includes a connecting wall having a linear shape secured to the rear end of the inner tube and the outer tube. The outer tube, connecting wall and inner tube define one cylindrically shaped annular gap, and a solid ring of heat melt adhesive is disposed within the

annular gap and positioned against the connecting wall. The solid ring of adhesive fills less than the full volume of the annular gap.

Claims 12 and 13 are similar to claim 7, and include further limitations.

Nakashiba et al. '922 does not disclose, anticipate or otherwise suggest the claimed invention of claims 7, 12, or 13 as amended. The Examiner suggests that Nakashiba et al. '922 discloses an outer tube, a connecting wall, and inner tube, and a solid ring of non-crosslinked polyolefin arranged in an annular gap between the outer tube and the inner tube. In order to arrive at this structure, the Examiner argues that a connecting wall is defined as he indicated in FIG. A at W of the Office Action which interconnects the rear end of the outer tube T and the rear end of the inner tube 23. However, the wall W includes two vertical sections connected by a horizontal section, and the surface of the connecting wall W interconnects the rear end of the outer tube T and the rear end of the inner tube 23. This is clearly not the same structure as the linear connecting wall defining a flat surface and extending between a rear end of the outer tube and the rear end of the inner tube, as disclosed by the Applicant.

In Nakashiba et al., the length of the front end of the outer tube is the same as the length of the front end of the inner tube. The structural relationship between the inner tube and outer tube in Nakashiba et al. '922 is clearly distinguishable from the present invention, where the length of the front end of the outer tube is shorter than the length of the front end of the inner tube.

Nakashiba et al. '922 does not disclose one annular gap having a cylindrical shape, as disclosed by the Applicant. Nakashiba et al. '922 is distinguishable because it essentially discloses two concentric annular gaps, the gap shown at 22 and the gap containing the adhesive shown at 13. In fact, the teachings of Nakashiba et al. '922 teach away from the present invention, since Nakashiba et al. '922 teaches that the member is disposed in the first gap, and

the entire volume of the second gap is filled adhesive, as shown at 13 in FIG. 4. This is clearly distinguishable from the structure of Applicant's invention, wherein the adhesive ring occupies less than the entire volume of the one gap.

These are critical features which distinguish the present application over Nakashiba et al. '922. Therefore, Applicant respectfully submits that claims 7-8 as amended, and the claims dependent therefrom are in a condition for allowance over the rejection under §102(b), which allowance is respectfully solicited.

Claims 7-8 were rejected under 35 U.S.C. §103(a) as being obvious over Nakashiba et al. (US 5,150,922) in view of Harget et al. (WO 98/531241). The Applicant respectfully traverses this rejection for the reasons set forth above and as follows.

The WO 98/531241 application to Harget et al. discloses a method for the manufacture of a heat fusion fitting. The method includes the steps of forming a body 1 of a layer of crosslinked polymeric material, embedding a heating element 11 in a second polymeric material to form an insert, and the heating element has a Curie temperature equal to or greater than the crystalline melting point of the second polymeric material. The method further includes the step of assembling the body and insert to form the fitting.

None of the references, alone or in combination with each other, teach or otherwise suggest the claimed invention of claim 7 as amended. Specifically, the Nakashiba et al. '922 reference discloses a laminate structure with a heating element either embedded in or adjacent a non-crosslinked polyolefin layer. The Harget reference discloses a heating element embedded or partially embedded in a second polymeric material to form an insert. Neither reference discloses an external heating element, which in this example is a removable holder with an induction coil that is placed around the joint and then removed. Clearly, an embedded heating element is not

the same as a removable heating element placed on the outside of the structure and removed after the adhesive has melted, as disclosed by the Applicant.

The Examiner argues that Nakashiba et al. anticipated claims 7-8 because it would have been obvious to use a solid ring of hot melt adhesive for the solid ring of thermoplastic material in Figure 4 of Nakashiba et al., since Harget et al. discloses that the second polymeric material may be a hot melt adhesive. Again, the structure of the joint of the present application is clearly distinguishable from the structure of Nakashiba et al., or Harget et al. The present invention teaches a coupling element that includes an inner tube insertable into a fluid line, an outer wall, and a linear connecting wall interconnecting the inner tube and outer tube to form one cylindrically shaped annular gap for receiving a solid ring of hot melt within less than the entire volume of the annular gap. The present invention also discloses an external, removable holder with a heating means that is placed around the coupling element and removed after the adhesive is melted. This is not the same structure as an internal, non-removable heating element embedded in the coupling element.

The combination of references, if even combinable, would not render obvious Applicant's invention as claimed in claim 7 as amended. The combination of Nakashiba et al. and Harget et al. would yield an electrofusion joint for mating two members. The joint would include a tubular crosslinked polyolefin layer and two joining portions forming a non-crosslinked polyolefin layer that would be formed as an integral part of an inner side of the crosslinked polyolefin layer. A heating electrical wire is provided either within or on an outer or inner surface of the crosslinked polyolefin layer. A support integral with the first layer would form a groove for receiving the mating members. The second layer would be a hot melt adhesive.

Such a proposed combination is clearly distinguishable from Applicant's invention, in that the present invention includes a tubular coupling element formed by an inner tube having a front end insertable into a fluid member that is longer than a front end of an outer tube, and a rear end of the inner tube is to a rear end of a concentric outer tube by a linearly extending connecting wall, and an adhesive ring is disposed in the one cylindrically shaped annular gap and positioned adjacent the connecting wall. In addition, the proposed combination is distinguishable since the adhesive occupies less than the entire volume of the annular gap. Further, the proposed combination is distinguishable since the heating element is not external, but is embedded in the tubular coupling element. Neither of these references discloses an inner tube joined at a rear end to a concentric outer tube, and the front end of the inner tube is longer than the front end of the outer tube. Neither of these references discloses a removable heating element. Neither of these references discloses one annular gap having a cylindrical shape with a ring of hot melt material disposed in the annular gap and against a connecting wall, or that the ring of adhesive occupies less than the entire volume of the annular gap.

Therefore, it is respectfully submitted that claim 7 as amended and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. §103(a).

Claims 9-10 and 12-13 were rejected under 35 U.S.C. §103(a) as being obvious over Nakashiba et al. (US 5,150,922) in view of Harget et al. (WO 98/531241) and further in view of Europe '831 (EP 0 289 831) and optionally Great Britain '496 (GB 2 133 496). The Applicant respectfully traverses this rejection for the reasons set forth above with respect to claim 7. Since the Applicant has shown that the broader claim is allowable over the first cited reference, likewise the narrower claims are allowable.

Claim 11 is rejected under 35 U.S.C. §103(a) as being obvious over Nakashiba et al. (US 5,150,922) in view of Harget et al. (WO 98/531241) and further in view of German '299 (DE 26 03 299) and optionally Stephenson (US 1,921,642). The Applicant respectfully traverses this rejection for the reasons set forth above with respect to claim 7. This claim depends from claim 7. Since the Applicant has shown that the base claim is allowable over the first cited reference, likewise any dependent claim is allowable.

Based on the above, Applicant submits that the claims are in condition for allowance, which allowance is respectfully solicited. If the Examiner finds to the contrary, it is respectfully requested that the undersigned in charge of this application be called at the telephone number given below to resolve any remaining issues.

Respectfully submitted,

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I hereby certify that this correspondence is being sent to the United States Patent Office via facsimile (703-872-9306) on May 9, 2005

Erica L. Triner